

Guest editorial special issue on “Future multimedia networking”

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In recent years, the ubiquity of multimedia services along with the proliferation of mobile devices and the demand for new audio and video applications are changing the life style of users. The multimedia era is allowing users to create, distribute, and access content in ubiquitous way and cost-effectively, while providers explore new ways to increase their revenues. The efficient delivery of real-time multimedia services over emerging diverse and heterogeneous systems is a challenging research goal. The interoperability of applications, transport and network protocols as well as the demand for improved Quality of Service (QoS), Quality of Experience (QoE), and seamless mobility create new challenges and opportunities for further research on novel communication protocols, architectures, and methods to efficiently support current and future multimedia networking systems.

In 2009, the Second International Future Multimedia Networking (FMN 2009) workshop was organized in Coimbra, Portugal and achieved exceptional success attracting 64 submissions from 33 countries. FMN 2009 produced a high quality peer reviewed technical programme with an acceptance rate at around 25% and addressed important aspects of future multimedia systems with a focus on Autonomic Content Networks.

Authors of selected papers from FMN 2009 were invited to submit extended versions of their papers in order to be considered for inclusion in this Special issue on Future Multimedia. These papers were peer-reviewed again and then further revised by the authors.

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The paper '*A Scalable Multimedia QoS Architecture for Ad hoc Networks*' introduces a scalable, multimedia-aware QoS provisioning and routing architecture for ad hoc networks. The proposed solution was analyzed in a simulation environment, and was compared to well-known routing protocols. The results obtained demonstrate significant throughput gains and quality level assurance.

In the paper '*A non-intrusive estimation for high-quality Internet TV services*', the estimator mechanism is presented with stability as one of its strong features as it manages to avoid continuous changes in the encoding bit rate. The proposed approach can dynamically adapt the video bit rate to avoid low quality in user experience. The evaluation results show improved performance.

The paper '*Performance Evaluation of Split Transmission in Multihop Wireless Networks*' theoretically studied the split transmission approach using performance metrics such as worst-case delay, average throughput, and average delay jitter. The Split transmission technique can be applied without changing the underlying hardware and MAC protocols. The simulation results obtained closely match the theoretical analysis.

The most recent literature indicates Multiple Description Coding (MDC) as a promising coding approach to handle the problem of video transmission over unreliable networks with different quality and bandwidth constraints. The paper '*ILPS: a Scalable Multiple Description Coding Scheme for H.264*' describes an approach that moves from the concept of spatial MDC and improves coding efficiency by exploiting some form of scalability. The experimental results presented show that the algorithm provides excellent results in several conditions including 3D video sequences.

The paper '*Recent Advances in Multimedia Networking*' presents some of the advances made recently in various areas of multimedia networking including Quality of Experience (QoE) and various related standardization issues, Content Distribution Networks (CDNs), multimedia communications, and mobile multimedia. The authors also highlighted some of the major challenges that still need to be addressed to enable the support and delivery of multimedia services ubiquitously over heterogeneous infrastructures and user devices.

We wish to thank all the authors for considering this special issue of Multimedia Tools and Applications Journal as a venue for submitting their papers. We express our gratitude to all reviewers who devoted their precious time in providing valuable feedback on all the papers considered for this special issue.

Finally, we thank the Editor-in-Chief, Professor Borko Furht, for his great support and encouragements. We would also like to take this opportunity to thank Maria Mhanilet de Leon at Springer for her unconditional support and time throughout the preparation of this issue.

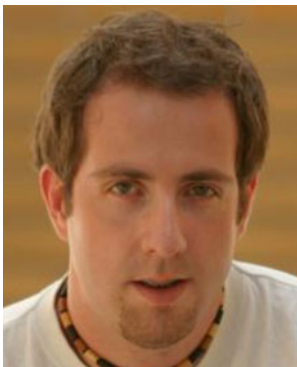
We hope that this special issue will provide a valuable source of reference for researchers, designers, engineers, and developers working in the area of multimedia networking.

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